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EXAMINER

KIM, PAUL

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,004	Applicant(s) ROWAN ET AL.	
	Examiner PAUL KIM	Art Unit 2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-46,48-54 and 56-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-46,48-54 and 56-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This Office action is responsive to the following communication: Amendment filed on 8 April 2010.
2. Claims 26-46, 48-54, and 56-73 are pending and present for examination.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 April 2010 has been entered.

Response to Amendment

4. Claims 26, 54, 63, 64, 69, and 73 have been amended.
5. No claims have been cancelled.
6. No claims have been added.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 26-29, 32, 38-47, 54-61, 63-65, 69, 71, and 73** are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al (USPGPUB 2003/0167380, hereinafter referred to as GREEN),

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filed on 22 January 2003, and published on 4 September 2003, in view of Kedem et al (U.S. Patent No. 6,598,131, hereinafter referred to as KEDEM), filed on 11 October 2002, and issued on 22 July 2003.

9. **As per independent claims 26, 54, 63, 64, 69, and 73**, GREEN, in combination with KEDEM, discloses:

A method for providing data, the method comprising the steps of:

storing, in an original data store, all write commands directed to a primary data store in during a time interval {See KEDEM, C3:L63-C4:L4, wherein this reads over "the LDIM functions to intercept and process requests that are intended to be received by the LPSD" and "[c]ommon are read/write requests specifying an address"}, so as to accumulate backup data, each write command being stored when directed to the primary data store;

receiving a request {See GREEN, Para. 0147, wherein this reads over "a restore command is received"} to create a virtual data store that reflects a state of the primary data store at a specified time, the specified time being any point in time during the time interval {See GREEN, Para. 0148, wherein this reads over "the user decides to restore the system to the state in which it existed at 12:11 PM"},

creating the virtual data store from data stored in the original data store {See Green, Paras. 0066, wherein this reads over "a first set of operations ("Write to Volume") is shown in which "write" commands to a volume occur and the resulting impact on the snapshot caches are discussed"};

receiving a storage protocol request for data at a specified address in the virtual data store {See GREEN, Para. 0147, wherein this reads over "a process restores the selected granule by searching for the selected granule in each snapshot index commencing with the snapshot to be restored"}; and

transmitting the requested data in response to the storage protocol request {See GREEN, Figures 42 and 43; and Para. 0148, wherein this reads over "Fig. 42 illustrates the state of the system prior to the restore and Fig. 43 illustrates the state of the system following the restore"}.

While GREEN may fail to expressly disclose the method step of backing up an original data store by receiving all write commands for the original data store during a time interval, KEDEM discloses a data image management system wherein read/write requests are intercepted. Therefore, in light of the aforementioned disclosures by GREEN and KEDEM, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above invention suggested by GREEN by combining it with the invention as disclosed by KEDEM. The results of this combination would lead to a method wherein write commands are received and used to create a virtual data store.

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Additionally, it would be inherent to the claimed invention to select a specified time from a continuous time interval wherein the claimed method for providing data requires that the request to create a virtual data store reflect a state of an original data store at a specified time.

One of ordinary skill in the art would have been motivated to do this modification such that the write requests may be intercepted for use in the creation of a data store.

10. **As per dependent claims 27, 57, and 58**, GREEN, in combination with KEDEM, discloses:

The method of claim 26 wherein the original data store comprises another virtual data store {See GREEN, Para. 0008, wherein this reads over "[t]he object of the snapshot for which the image is provided may be of a . . . logical partition"}.

11. **As per dependent claims 28, 40, 41, and 59**, GREEN, in combination with KEDEM, discloses:

The method of claim 27 wherein the original data store comprises a current store and a time store {See GREEN, Para. 0146, wherein this reads over "restore functionality that allows restoration of a volume to any state recorded in a snapshot while retaining all snapshots"}.

12. **As per dependent claims 29 and 60**, GREEN, in combination with KEDEM, discloses:

The method of claim 26 wherein the virtual data store comprises a logical unit {See GREEN, Para. 0008, wherein this reads over "[t]he object of the snapshot for which the image is provided may be of a . . . logical partition"}.

13. **As per dependent claim 32**, GREEN, in combination with KEDEM, discloses:

The method of claim 26 wherein the request to create the virtual data store is received via a user interface {See GREEN, Figure 14; and Para. 0122, wherein this reads over "allows the user to schedule a new snapshot"}.

14. **As per dependent claim 38, 39, and 61**, GREEN, in combination with KEDEM, discloses:

The method of claim 54, further comprising, before the generating step, the step of receiving a request to create the virtual data store {See GREEN, Para. 0126, wherein this reads over "the user is able to request that a recovery disk be created"}.

15. **As per dependent claims 42 and 71**, GREEN, in combination with KEDEM, discloses:

The method of claim 26 wherein the original data store comprises at least one terabyte of data {See GREEN, Figure 44; and Para. 0006, wherein this reads over "If a terabyte of data is to be backed up, then a terabyte of storage capacity is required."}.

16. **As per dependent claim 43**, GREEN, in combination with KEDEM, discloses:

The method of claim 42 wherein the original data store comprises multiple physical storage devices {See GREEN, Figure 44; and Para. 0046, wherein this reads over "[t]he computer m

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ay operate in a networked environment using logical connections to one or more remote computers" and "[s]uch networking environments are commonplace in . . . intranets and the Internet".

17. **As per dependent claim 44**, GREEN, in combination with KEDEM, discloses:

The method of claim 43 wherein the multiple physical storage devices comprise at least ten physical storage devices {See GREEN, Figure 44; and Para. 0046, wherein this reads over "[t]he computer m ay operate in a networked environment using logical connections to one or more remote computers" and "[s]uch networking environments are commonplace in . . . intranets and the Internet"}.

18. **As per dependent claim 45**, GREEN, in combination with KEDEM, discloses:

The method of claim 44 wherein the multiple physical storage devices comprise at least 100 physical storage devices {See GREEN, Figure 44; and Para. 0046, wherein this reads over "[t]he computer m ay operate in a networked environment using logical connections to one or more remote computers" and "[s]uch networking environments are commonplace in . . . intranets and the Internet"}.

19. **As per dependent claim 46**, GREEN, in combination with KEDEM, discloses:

The method of claim 26 wherein the virtual data store comprises a read only data store {See GREEN, Para. 0160, wherein this reads over "the snapshots maintained by the firmware are read only"}.

20. **As per dependent claims 47 and 55**, GREEN, in combination with KEDEM, discloses:

The method of claim 54 wherein the specified time is selected from a substantially continuous time interval {See GREEN, Para. 0062, wherein this reads over "the first snapshot cache was being dynamically created between times 5 and 10 and actually changed from time 8 to time 9; and Para. 0148, wherein this reads over "the user decides to restore the system to the state in which it existed at 12:11 PM"}.

21. **As per dependent claim 56**, GREEN, in combination with KEDEM, discloses:

The method of claim 55, further comprising the step of copying the virtual data store to another data store {See GREEN, Para. 0066, wherein this reads over "Data 'E' is written to this address at time 4, replacing data 'B'"}

22. **As per dependent claim 65**, GREEN, in combination with KEDEM, discloses:

The system of claim 64, further comprising a storage protocol write request {See GREEN Para. 0057, wherein this reads over "[t]he letters (E, F, G, H, I, J, K, and L), shown within this grid, represent specific data for which a command to write such specific data to the volume at the corresponding address and at a specific time point has been received"}.

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. **Claims 30-31, 33-37, 48-53, 62, 66-68, 70, and 72** are rejected under 35 U.S.C. 103(a) as being unpatentable over GREEN, in view of KEDEM, and in further view of Official Notice.

25. **As per dependent claims 30, 51, and 66**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art to use single protocol request packets. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein both the request to create the virtual data store and the storage protocol request are received in a single protocol request packet. It would have been obvious to one of ordinary skill in the art at the time the invention was created to transmit both the request to create the virtual data store (e.g. a new logical unit) and the storage protocol request in a single protocol request packet. One of ordinary skill in the art would acknowledge that a data packet may commonly include other information such as read and write commands.

26. **As per dependent claim 31**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that different data packets are used in creating a virtual data store and a storage protocol request. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the request to create the virtual data store is received in a different data packet than the storage protocol request. It would have been obvious to one of ordinary skill in the art at the time the invention was created to separately transmit either of the request to create the virtual data store (e.g. a new logical unit) and the storage protocol request in a single protocol request packet. One of ordinary skill in the art would acknowledge that a data packet may commonly include only one command, such as a request to create a virtual data store or a storage protocol request.

27. **As per dependent claim 33**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art a storage protocol request is used to create a virtual data store. GREEN, in combination with KEDEM and Official Notice, would disclose a method

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wherein the request to create the virtual data store is received via the storage protocol request. It would have been obvious to one of ordinary skill in the art at the time the invention was created to receive the request to create the virtual data store via a standard storage protocol request.

28. **As per dependent claim 34**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that a storage protocol request would comprise a standard read request. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the storage protocol request comprises a standard read request. It would have been obvious to one of ordinary skill in the art at the time the invention was created to have a storage protocol request comprise a standard read request. One of ordinary skill in the art would acknowledge that a standard read requests are used in storage protocol requests.

29. **As per dependent claim 35, 52, and 67**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that a SCSI read request be used in the storage protocol request. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the storage protocol request comprises a SCSI read request. It would have been obvious to one of ordinary skill in the art at the time the invention was created to have a storage protocol request comprise a SCSI read request. SCSI is commonly known in the field of the claimed invention to provide a standard high-speed parallel interface. Hence, the use of a SCSI read request for a storage protocol request would have been obvious to one of ordinary skill in the art at the time the invention was created.

30. **As per dependent claims 36, 37, 53, and 68**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that a Fibre Channel protocol request be used. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the storage protocol request comprises a Fibre Channel protocol request. It would have been obvious to one of ordinary sill in the art at the time the invention was created to have a storage protocol request comprise a Fibre Channel protocol request. Fibre Channel protocols are commonly known in the field of the claimed invention to provide a standardized active intelligent interconnection scheme, called a

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Fabric, to connect devices. Hence, the use of a Fibre Channel protocol request for a storage protocol request would have been obvious to one of ordinary skill in the art at the time the invention was created.

31. **As per dependent claims 48 and 70**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that data maybe transmitted substantially instantaneously. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the data is transmitted substantially instantaneously in response to the storage protocol request. Data is commonly transmitted instantaneously in response to a storage request. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was created to have data transmitted instantaneously.

32. **As per dependent claims 49 and 72** the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that data be transmitted in less than 1 millisecond. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the data is transmitted in less than 1 millisecond. Transmissions of data commonly occur in less than 1 millisecond. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was created to have data transmitted within a millisecond.

33. **As per dependent claim 50**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that writing of data would occur in response to a write request. GREEN, in combination with KEDEM and Official Notice, would disclose a method wherein the step of writing data to the virtual data store occurs in response to a storage protocol write request. Any process wherein data is written to the virtual data store impliedly requires some write request. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was created to have data written to a virtual data store in response to a storage protocol write request.

34. **As per dependent claim 62**, the Examiner takes Official Notice that it would have been obvious and widely-known to one of ordinary skill in the art that a data store may be generated within one second of a request to create said data store. GREEN, in combination with KEDEM and Official

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Notice, would disclose a method wherein the virtual data store is generated within one second of the request to create the virtual data store. It is commonly known to one of ordinary skill in the art that where a request is submitted, generation of a virtual data store may occur within one second.

Response to Arguments

35. Applicant's arguments filed 21 August 2008 have been fully considered but they are not persuasive.

a. Claim Rejections under 35 U.S.C. 103 – Green and Kedem

Applicant asserts the argument that the combination of Green and Kedem fails to disclose "a method for providing data comprising a separate step of creating the virtual data store from data stored in the original data store." See Amendment, page 17. The Examiner respectfully disagrees. It is noted that Green discloses a snapshot system wherein data written to a system (i.e. the original data store) is used to create data snapshots in a secondary snapshot system (i.e. the virtual data store). Specifically, Applicant asserts the argument that "Green and Kedem do not disclose receiving two commands, one to create a virtual data store, and another for data at a specified address in the virtual data store." See Amendment, page 17. The Examiner notes that the snapshot system of Green discloses that each snapshot cache begins at its respective time of snapshot wherein "if a command to take a snapshot is received, then a new snapshot cache is started" (i.e. a command to create a virtual data store). See Green, [0075] and [0076]. Secondly, the Examiner notes that Green discloses the retrieval of a selected snapshot wherein the selected granule for the selected snapshot is searched in an index and subsequently retrieved from the volume granule address (i.e. a command for data at a specified address in the virtual data store). See Green, [0147]. Accordingly, it is noted that Green indeed would teach the recited features of "a method for providing data comprising a separate step of creating the virtual data store from data stored in the original data store."

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Additionally, Applicant asserts the argument that Green and Kedem "do not disclose creating a virtual data store that reflects a state of a primary data store at any point in time during the time interval." See Amendment, page 17. The Examiner respectfully disagrees. Wherein Green et al discloses that "the actual time interval between each discrete chronological time point and within each time point may be of any arbitrary duration," it would have been obvious to one of ordinary skill in the art that snapshots may be taken of a primary data store in a manner which presented the capture of historical data to be continuous. See Green et al, [0056]. While Applicant asserts that the original files could not be restored "as they existed at 12:15," the Examiner notes, in light of the aforementioned disclosure by Green et al, that one of ordinary skill in the art would have readily discerned that snapshots of the system could have been made in a continuous manner every minute such that a snapshot of the system at 12:15 would be available.

Additionally, Applicant asserts the argument that Green fails to disclose "backing up an original data store by receiving all write commands for the original data store during a time interval so as to accumulate backup data to restore the original data store to any point in time during the time interval." See Amendment, page 20. The Examiner respectfully disagrees in twofold.

- i. Firstly, it is noted that Applicant's Specification notes that "[t]he specified time can be selected from a substantially continuous time interval." (emphasis added). See Specification, [0017]. Additionally, Applicant's Specification notes that "[t]he first time can be selected from a substantially continuous time interval, typically between a past time and the current time." (emphasis added). See Specification, [0026]. Accordingly, it is noted that Applicant's present invention fails to enable a restoration of the volume to any point in time during a time interval. That is, wherein the selection of a time is from a substantially continuous time interval, said time interval would obviously contain gaps or periods of time wherein selection is not enabled. Wherein the time interval is only

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substantially continuous, said time interval would not consist of every and all time points within the time interval.

ii. Secondly, while Applicant asserts the argument that Green "does not allow for restoration of data outside of the limited bounds of the individual snapshots," the Examiner notes that said individual snapshots may be made in a continuous manner such that a snapshot of the volume is taken at every second. Furthermore, the Examiner notes that Green discloses a system wherein overlapping snapshots are taken by first starting a new snapshot by writing to a new snapshot cache and thereafter ending the writing to the prior snapshot cache. See Green, [0103]. Accordingly, it is noted that while Applicant's disclosed invention fails to provide a method for maintaining a snapshot at all times, the invention as disclosed by Green provides a means to restore a volume to any point in time during a time interval. While Applicant responsively asserts the argument that Green would be unable "to recreate the volume at a time between the creation time of a first snapshot at a time of one second and a second snapshot made at a time of two seconds," the Examiner notes that the disclosed invention of Green would appropriately read upon the substantially continuous time interval defined in Applicant's Specification. See Amendment, page 20.

Accordingly, for the aforementioned reasons above, the Examiner maintains the claim rejections under 35 U.S.C. 103.

b. Claim Rejections under 35 U.S.C. 103 – Official Notice

Applicant asserts the argument that the Examiner's Official Notice is deficient in that the Examiner has not provided documentary evidence of proof for the Official Notice. The Examiner notes that the features claimed are well-known within the art. Because Applicant has inadequately traversed the Official Notice and is therefore deficient, no document evidence shall be provided by the Examiner. The Applicant is directed to MPEP 2144.03, which address the topic of Official Notice and clearly state the criteria for traversing an Official Notice. MPEP 2144.03, Part C states the following in part:

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To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b). See also Chevenard, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention."). A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. (emphasis added)

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. (emphasis added).

Accordingly, because of Applicant's inadequate traversal, it is noted that the rejections of the claims in view of the cited Official Notice are maintained.

Conclusion

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL KIM whose telephone number is (571)272-2737. The examiner can normally be reached on M-F, 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tony Mahmoudi can be reached on (571) 272-4078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Kim
Examiner, Art Unit 2169
TECH Center 2100

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